

## The Return Composition of Convertible Arbitrage and why it Matters

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We are often asked the fundamental question: *why should I allocate to convertible arbitrage in my hedge fund portfolio?* With the wide range of strategies and asset classes seen in the hedge fund industry answering this question calls for a multi-dimensional approach. Here are three elements that should be considered:

- Comparison of the risk/return profile of Convertible Arbitrage versus other hedge fund strategies;
- The diversification benefit of including Convertible Arbitrage in a diversified portfolio of hedge funds; and
- The return composition of the strategy in comparison to other available hedge fund strategies

The first two elements are widely recognized and utilized by institutional allocators to hedge funds. The third element (return composition), however, is not given as much attention.

This paper focuses solely on return composition and its importance in understanding how convertible arbitrage differs significantly from other widely used strategies. We do not claim that any particular return composition is better than another. The investor makes that determination by comparing the return elements in a particular strategy with their own level of confidence and conviction in each element.

### Portfolio return composition: distinguishing “baseline return” from “alpha” and arbitrage profits

A starting point for the analysis of hedge funds is distinguishing between a “baseline return” for a particular strategy or fund and the desired “alpha” expected from the manager. Baseline return is defined as the anticipated return of the portfolio without a contribution from alpha. A simple example of this calculation would be an equity portfolio which on average maintains a beta of 1.0 to an equity index. The allocator develops a long-term return expectation for the equity index. If the long-term return expectation is, for example, 6.5%, the baseline return for the active portfolio (before fees) would be the same 6.5%. Any additional return would constitute alpha.

Baseline return is important because it exhibits attributes that are very distinct from alpha. Baseline return is built upon the notion of risk premium and risk premium capture. Risk premium, in turn, is linked to wealth creation through economic activity. It is compensation for risk, and is not a zero-sum game. It is generally more predictable than alpha. Risk premium is available to a large base of investors. Equities and corporate bonds are embedded with risk premium, and risk premium can be measured over long periods of time. In some cases, risk premium can be harvested with low-cost passive portfolio strategies, such as equity index funds.

Alpha, in turn, comes from manager skill in identifying mispricing and arbitrage opportunities in capital markets. It is in fact often a zero-sum game. Based on the investor’s overall return objective, the lower the baseline return coming from portfolio structure, the greater the alpha, and confidence in alpha, needed to achieve return objectives. This is not to say that a portfolio with a relatively low baseline return is unattractive. The alpha and arbitrage opportunities may be well-worth committing capital to. It is important, however, to distinguish risk premium from alpha.

The term “alternative risk premium” is sometimes used to describe the profit potential from what are essentially arbitrage or “pure alpha” strategies. This only creates confusion, and makes the work of allocators more difficult. Risk premium and alpha are distinct elements of portfolio return, and should be recognized as such.

Let's now move to a hedge fund example. Consider a long/short equity hedge fund with an average portfolio profile over time of 120% long, 70% short, and 50% net long exposure. Also, assume a long term equity index return of 6.5%; the fund's cost of borrow is effective Fed Funds (FF) + 60 basis points; rebate on short positions is FF - 30 bps; FF is 1.25%; and annual management fee is 1%. Baseline return for the fund is below:

50% net equity exposure: 50% of 6.5% = 3.25%  
 Interest expense: 20% x 1.85% = -0.37%  
 Rebate on short positions = 70% x 0.95% = 0.67%  
 Management fee: 1%  
**Baseline return (before incentive fee): 2.55%**

The investor now needs to calculate the alpha needed to reach a specific targeted return. Suppose the targeted return is 7%. The alpha needed is 7% - 2.55% = 4.45%

As market exposure and risk premium capture comes down, the baseline return comes down, accordingly. The table below shows examples of hypothetical hedge fund portfolios with relatively low baseline returns. The investor is assumed to be targeting a net average return of 7%. The Commodity Trading Advisor (CTA) and global macro portfolios are designed to be uncorrelated with equity markets and interest rates, and as likely to be short a particular market as long.

	Long/Short Credit (120% long/70% short)	Market Neutral Equity (100% long/100% short)	CTA (uncorrelated)	Global Macro (uncorrelated)
Long-term return for index	5.00%	6.50%	N/A	N/A
Average net market exposure	50.00%	0.00%	0.00%	0.00%
Net market exposure return	2.50%	0.00%	0.00%	0.00%
Interest expense (FF+60 bps)	-0.37%	0.00%	N/A	N/A
Short rebate (FF-30bps)	0.65%	0.95%	N/A	N/A
Management fee (before incentive fee)	-1.00%	-1.00%	-1.00%	-1.00%
<b>Baseline return</b>	<b>1.78%</b>	<b>0.00%</b>	<b>-1.00%</b>	<b>-1.00%</b>
<b>Alpha needed to reach 7%</b>	<b>5.22%</b>	<b>6.45%</b>	<b>8.00%</b>	<b>8.00%</b>

Note that the alpha needed to reach the investor's return objective is relatively large. This is neither good nor bad, but depends on expectations. This is a positive attribute if confidence in alpha generation is high, and less desirable if confidence in alpha versus risk premium capture is lower.

## The Baseline Return of a Convertible Arbitrage Portfolio

The baseline return of a convertible arbitrage portfolio is developed similarly, although the structural components are somewhat different. The three components of return are income, expected trading gains from equity volatility (referred to as "gamma trading"), and alpha from the identification of mispriced and event-driven positions. Here is a hypothetical, but we believe realistic, example of a convertible arbitrage portfolio and its baseline return composition:

- Long positions as % of capital: 170%
- Short positions as % of capital: 85%
- Average current yield on long positions: 3.8%
- Average dividend yield on short positions: 0.5%

Current income =  $1.7 \times 3.8\% = 6.46\%$

Interest expense:  $70\% \times 1.85\% = -1.30\%$

Rebate on short positions =  $85\% \times 0.95\% = 0.81\%$

Dividends on short positions =  $0.85 \times 0.5\% = -0.43\%$

Management fee: 1%

Incentive fee: 10% with 3% hurdle

Normalized gamma trading gains =  $1.7 \times 1\% = 1.7\%$

**Baseline return: 6.24% before incentive fee**

**Baseline after incentive fee of 10% with 3% hurdle: 5.92%**

**Alpha needed to reach 7% net return target: 1.08%**

Note that the convertible arbitrage portfolio described above has a relatively low alpha requirement to meet the objective of approximately 1% as compared to a much larger alpha requirement from the hedge fund strategies in the previous table.

## The Correlation Conundrum

Mathematically, including strategies in a portfolio that are uncorrelated, or minimally correlated, to capital market indices provides a diversification and risk reduction benefit. At the same time, the investor must realize that many of these uncorrelated strategies are extremely dependent on alpha and the successful identification of managers that can generate relatively high rates of alpha over long periods of time. If the targeted level of overall alpha is not reached, the portfolio runs the risk of potentially severe shortfall versus targeted return.

It is important to consider strategy attributes beyond correlation. Low-beta strategies with attractive Sharpe ratios provide important benefits to portfolios. Investment in asset classes with relatively high embedded risk premium versus underlying economic risk should also get consideration. Finally, strategies with asymmetric return attributes, and particularly truncated downside risk, provide significant portfolio benefits even though they may exhibit fairly high correlation to major asset classes.

## Summary

The return composition of convertible arbitrage portfolios benefits from the favorable risk premium attributes of the convertible market. Non-investment grade and non-rated convertibles, which constitute 80% of the market, trade consistently at option-adjusted credit spreads at parity or greater than single-B high yield bonds, even though the convertible market is not dominated by highly leveraged companies. Convertible issues tend to be growth-oriented companies with an average equity market capitalization of approximately \$35 billion.

Convertible arbitrage also benefits from the ability to monetize volatility by hedging the embedded option in the convertible (Gamma Trading) in addition to the active management of the portfolio.

Finally, because the convertible market is a niche market, and the valuation of convertibles is more complex than traditional bonds, inefficiencies in pricing offer a third source of return.

We believe the example of baseline return for convertible arbitrage reasonably represents opportunities available currently. The portfolio example provides a baseline return fairly close to institutional return targets, and is not as dependent on alpha generation as several other widely utilized strategies.

Our own view is that alpha is a valuable but an increasingly scarce source of return, while risk premium is something that appears more dependably in capital markets. The tradeoff is that risk premium will often exhibit at least some correlation to the economy and broad markets. The key is to finding the right mix. As several hedge fund strategies depend greatly on alpha generation, the inclusion of convertible arbitrage can help reduce the risk of alpha shortfall. It is a strategy that deserves consideration.

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